

ACTIVITY 1

Name _____

Pass the Ball

Math Objectives:

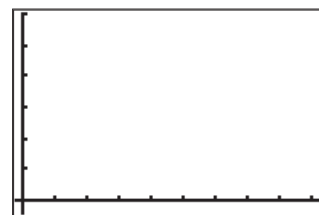
- Graph scatter plots
- Graph linear functions
- Analyze proportional relations
- Interpret, predict, and analyze data and graphs

Materials:

- TI-83/TI-84 Plus Family
- Stopwatch
- Small bouncing ball (tennis/racquet balls work well)

Pass the Ball Data				
Number of People	Trial 1	Trial 2	Trial 3	Average Time in Seconds
4				

1. Fill in the table above for the **Pass the Ball** activity.
2. Estimate how long you think it will take to do this activity with everyone in the room participating. _____
3. Enter the number of people in the group in **L1** and the time for that group to pass the ball in **L2**. Turn on the [STAT PLOT] for **L1** and **L2** using the **9:ZoomStat** feature from the [ZOOM] menu to scale your window. Make a sketch of these data points in the graph here.
4. Draw what you consider to be the line of best fit.
5. Select two points through which your line passes and use them to find the slope of your line. Write the equation of your line here _____, enter it into the calculator beside **Y1 =**, and then press [GRAPH]. Examine how closely the line you drew matches the line on your calculator.
6. It may be helpful to take control of the window settings rather than staying with the **9:ZoomStat** setting. Press [WINDOW]. Adjust the spread on the **X**-values to be a multiple of 47 as shown here to assure yourself of “friendly” numbers when you scroll. Next, adjust the **Y**-values to include the approximation of the time you expect the entire class will take to pass the ball.
7. Press [TRACE] and use the down arrow key to scroll along the line entered in **Y1**, not the data points. Scroll to the right until your **X**-value matches the total number of students in your class. Record your **Y**-value of that point here and explain what it represents.
Y= _____
8. Turn off **Plot 1** and clear **Y1** before beginning the **Extension** activity.



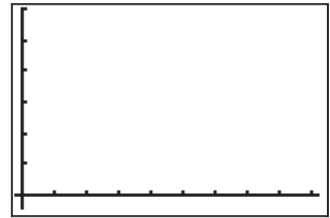
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WINDOW
Xmin=-1
Xmax=46
Xscl=5
Ymin=-2
Ymax=60
Yscl=5
Xres=1

```

**EXTENSION**

Pass the Ball Data				
Number of People	Trial 1	Trial 2	Trial 3	Average Time in Seconds
4				

- Fill in the table above for the **Extension Activity**.
- Estimate how long you think it will take to do this activity with everyone in the room participating. _____
- Enter the number of people in **L3** and the time for passing the ball in **L4** and turn on the [STAT PLOT] for **L3** and **L4**. Use the **9:ZoomStat** feature from the [ZOOM] menu to scale your window. Make a sketch of these data points in the graph here.
 
- Draw what you consider to be the line of best fit.
- Select two points through which your line passes and use them to find the slope of your line. Write the equation of your line here _____, enter it into the calculator beside **Y1=**, and then press [GRAPH]. Examine how closely the line you drew matches the line on your calculator.
- It may be helpful to take control of the window settings rather than staying with the **9:ZoomStat** setting. Press [WINDOW]. Adjust the spread on the **X**-values to be a multiple of 47 as shown here to assure yourself of “friendly” numbers when you scroll. Next, adjust the **Y**-values to include the approximation of the time you expect the entire class will take to pass the ball.


```

WINDOW
Xmin=-1
Xmax=46
Xscl=5
Ymin=-2
Ymax=60
Yscl=5
Xres=1
      
```
- Press [TRACE] and use the down arrow key to scroll along the line entered in **Y1**, not the data points. Scroll to the right until your **X**-value matches the total number of students in your class. Record your **Y**-value of that point here and explain what it represents.
Y= _____
- Was your approximation for the time it took the entire class an exact match to the time you recorded from actually doing the activity? What could be the cause of any discrepancy? _____

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.